

I Claim:

1 1. A bifurcated vascular graft comprising:  
2 a hollow tubular body member having first and second open ends;  
3 a first hollow tubular limb member having first and second open ends;  
4 and  
5 a second hollow tubular limb member having first and second open ends  
6 wherein the first open end of each of said first and second hollow  
7 tubular limb members are connected to the hollow tubular body  
8 member near the first open end of said hollow tubular body  
9 member such that a length of said limb members are  
10 circumferentially contained within said hollow tubular  
11 body member.

1 2. The bifurcated vascular graft of Claim 1 wherein said first and second hollow tubular  
2 limb members have approximately equal diameters, said diameters being smaller than a  
3 diameter of said hollow tubular body member.

1 3. The bifurcated vascular graft of Claim 1 wherein said first and second hollow tubular  
2 members extend beyond the second end of the hollow tubular body member.

1 4. The bifurcated vascular graft of Claim 1 further comprising at least one of a first

2       stent and first structural support located adjacent to the first end of said hollow tubular body  
3       member.

1       5.       The bifurcated vascular graft of Claim 4 wherein said at least one of a first stent and  
2       first structural support is positioned about an interior portion of said hollow tubular body  
3       member.

1       6.       The bifurcated vascular graft of Claim 4 further comprising at least one of a second  
2       stent and second structural support located adjacent to the second end of said first hollow  
3       tubular limb member.

1       7.       The bifurcated vascular graft of Claim 6 wherein said at least one of a second stent  
2       and second structural support is positioned about an exterior of said first hollow tubular  
3       limb member.

1       8.       The bifurcated vascular graft of Claim 6 further comprising at least one of a third  
2       stent and a third structural support located adjacent to the second end of said second hollow  
3       tubular limb member.

1       9.       The bifurcated vascular graft of Claim 8 wherein said at least one of a third stent and  
2       third structural support is positioned about an exterior of said first hollow tubular limb  
3       member.

1 10. The bifurcated vascular graft of Claim 9 wherein a portion of the second ends of said  
2 first and second hollow tubular limb members are folded back over said at least one of a  
3 second stent and second structural support and at least one of a third stent and third  
4 structural support, respectively, such that the second ends of said first and second hollow  
5 tubular limb members form cuffs.

1 11. The bifurcated vascular graft of Claim 1 wherein said first and second hollow tubular  
2 limb members are attached to one another along a portion of a circumference of their first  
3 open ends.

1 12. The bifurcated vascular graft of Claim 11 wherein at least a portion of the  
2 circumference of the first ends of each of said first and second hollow tubular limb members  
3 is attached to a portion of a circumference of the first end of said hollow tubular body  
4 member.

1 13. The bifurcated vascular graft of Claim 11 wherein the attachment between the first  
2 open ends of the first and second hollow tubular limb members is seamless.

1 14. The bifurcated vascular graft of Claim 11 further comprising a reinforcement suture  
2 positioned under the attachment area of the first ends of said first and second hollow tubular  
3 limb members.

1 15. The bifurcated vascular graft of Claim 11 further comprising:  
2 at least one of a first stent and a first structural support located adjacent  
3 the first open end of said first hollow tubular body member;  
4 at least one of a second stent and a second structural support located  
5 adjacent the second open end of said first hollow tubular limb  
6 member; and  
7 at least one of a third stent and a third structural support located adjacent  
8 the second open end of said second hollow tubular limb member.

1 16. The bifurcated vascular graft of Claim 15 wherein said at least one of a first stent and  
2 first structural support is positioned about an interior of said hollow tubular body member,  
3 said at least one of a second stent and second structural support is positioned about an  
4 exterior of said first hollow tubular limb member, and said at least one of a third stent and  
5 third structural support is positioned about an exterior of said second hollow tubular limb  
6 member.

1 17. The bifurcated vascular graft of Claim 16 wherein a portion of the second ends of  
2 said first and second hollow tubular limb members are folded back over said at least one of  
3 a second stent and second structural support and at least one of a third stent and third  
4 structural support, respectively, such that the second ends of said first and second hollow  
5 tubular limb members form cuffs.

1 18. A method for making a bifurcated vascular graft comprising the steps of:

2 a) cutting about a middle circumference of a thin hollow tube until  
3 approximately 3/4 of the circumference is cut;

4 b) folding said thin hollow tube away from an uncut portion at the cut of  
5 the thin hollow tube to form two hollow tubular limb members  
6 having equal diameters which are attached to one another along  
7 the fold;

8 c) positioning said hollow tubular limb members within a hollow tubular  
9 body member having a diameter at least twice the diameter of  
0 said hollow tubular limb members; and

1 d) attaching the cut ends of the hollow tubular limb members to an end  
2 of said hollow tubular body member such that a length of said  
3 limb members are circumferentially contained within said hollow  
4 tubular body member.

1 19. The method of Claim 18 further comprising the step of sewing a support suture  
2 underneath the uncut fold between the two hollow tubular limb members.

20. The method of Claim 18 further comprising the steps of:

a) positioning a first structural support adjacent the end of the hollow  
tubular member containing the attachment of the cut ends of the

7 two hollow tubular members wherein the first structural support  
8 is located about an interior of the hollow tubular member; and  
9 b) positioning second and third structural supports about an exterior of  
10 the two hollow tubular limb members, respectively, at ends of the  
11 two hollow tubular limb members that are opposite the fold.

1 21. The method of Claim 19 further comprising the step of folding the opposite ends of  
2 the hollow tubular limb members back over the first and second structural supports,  
3 respectively, to form cuffs.

1 22. A deployment apparatus for deploying a bifurcated graft having a main graft body  
2 which bifurcates into first and second limbs comprising:

3 a first limb tube for loading the first limb;

4 a second limb tube for loading the second limb wherein the first and  
5 second loaded limb tubes are positioned parallel to one another;

6 a graft body tube for loading the main graft body wherein the graft body  
7 tube is positioned adjacent to parallel ends of the first and second  
8 limb tubes; and

9 an outermost tube for loading the first and second limb tubes and the  
0 graft body tube such that all of said tubes are contained within the  
1 outermost tube.

1 23. The deployment apparatus of Claim 22 further comprising a metal tube for  
2 containing a guide wire wherein the metal tube is insertable throughout an entire length of  
3 the apparatus.

1 24. The deployment apparatus of Claim 22 further comprising a first homeostatic valve  
2 connected to said first limb tube.

1 25. The apparatus of Claim 24 further comprising a second homeostatic valve connected  
2 to said outermost tube.

1 26. The apparatus of Claim 22 further comprising a tapered tip capable of fitting onto  
2 an open end of said graft body tube.

1 27. The apparatus of Claim 22 wherein said second limb tube comprises a first open end,  
2 a second closed tapered end and a guide wire attached to said tapered end.

1 28. The apparatus of Claim 27 wherein said second limb tube is shorter in length than  
2 said first limb tube.

1 29. The apparatus of Claim 22 wherein said first and second limb tubes have  
2 approximately equal diameters.

1 30. A deployment apparatus for deploying a bifurcated graft having a main graft body  
2 which bifurcates into first and second limbs comprising:

3 a first limb tube for loading the first limb;

4 a second limb tube for loading the second limb wherein the first and  
5 second loaded limb tubes are positioned parallel to one another;

6 a graft body tube for loading the main graft body wherein the first and  
7 second limb tubes are contained within at least a portion of said  
8 graft body tube; and

9 an outermost tube for loading the first and second limb tubes and the  
10 graft body tube such that all of said tubes are contained within the  
11 outermost tube.

1 31. The deployment apparatus of Claim 30 further comprising a metal tube for  
2 containing a guide wire wherein the metal tube is insertable throughout an entire length of  
3 the apparatus.

1 32. The deployment apparatus of Claim 30 further comprising a first homeostatic valve  
2 connected to said first limb tube.

1 33. The apparatus of Claim 32 further comprising a second homeostatic valve connected  
2 to said outermost tube.



1 34. The apparatus of Claim 30 further comprising a tapered tip capable of fitting onto  
2 an open end of said graft body tube.

1 35. The apparatus of Claim 30 wherein said second limb tube comprises a first open end,  
2 a second closed tapered end and a guide wire attached to said tapered end.

1 36. The apparatus of Claim 35 wherein said second limb tube is shorter in length than  
2 said first limb tube.

1 37. The apparatus of Claim 30 wherein said first and second limb tubes have  
2 approximately equal diameters.

1 38. A method for intraluminal delivery of a bifurcated vascular graft, having a main graft  
2 body which bifurcates into first and second limbs, within a patient comprising the steps of:

- 3 a) loading the first limb of the graft into a first tube, the second limb of the  
4 graft into a second tube, the main graft body into a third tube;
- 5 b) inserting the first, second and third tubes endoluminally within the patient;
- 6 b) positioning the first, second and third tubes within the patient;
- 7 c) deploying the first limb by removing the first tube;
- 8 d) deploying the second limb by removing the second tube; and
- 9 e) deploying the third limb by removing the third tube.

1        39.    The method of Claim 38 further comprising the steps of :

2                    a) inserting the first, second and third tubes into a main tube; and

3                    b) removing the main tube to uncover the first, second and third tubes.